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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,797

07/19/2006

Daisuke Suzuki

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EXAMINER

KAU, STEVEN Y

ART UNIT

PAPER NUMBER

2625

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/586,797	Applicant(s) SUZUKI ET AL.	
	Examiner STEVEN KAU	Art Unit 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/10/09, 7/19/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This is the initial office action based on the application PCT filed on November 28, 2005.

Preliminary Amendment

- Applicants filed a preliminary amendment on July 19, 2006
- Claims 4, 5, 6, 7, 9, 10, and 11 have been amended.
- Claims 1-13 are pending for examination in this Action.

Information Disclosure Statement

2. The information disclosure statements (IDS) submitted on 6/10/2009 and 7/19/2006 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner as shown in the attached PTO-1449 forms.

Priority

3. Applicants claim priority to the foreign application JP 2004-344602, November 29 2004. However, there is no certified priority document submitted in the record. Applicants are required to submit a certified copy of the priority document per 37 CFR 1.341 and PCT Rule 17.1 for claiming the benefit of priority to foreign application. Thus,

Art Unit: 2625

applicants have not met the requirements set forth under 35 U.S.C. 119(a)-(d) and the benefit to claim the priority of JP 2004-344602 is denied.

Joint Inventorship

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 102/103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 2625

6. Claims 1, 2, 5-9, 12 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Hirano (US 7,499,198).

Regarding claim 8.

Hirano discloses an image forming apparatus capable of making a two-way recording to form an image on a recording medium by recording in a forward path and a return path of a scan by an ink-jet recording head, comprising:

a halftone process part configured to carry out a halftone process that is based on an inclined line-group keytone and maintains keytone continuity (**i.e. referring to Figs. 17, and 36, a system block diagram of an image processing apparatus and threshold matrix creation for halftone process, and Figs. 18, 19 and 23, disclose dot pattern having keytone after carrying out dithering process, and group-line keytone is maintained without changes, col 13, line 60 to col 16, line 67**),

wherein the halftone process part includes a dither process part configured to carry out a dither process in which the inclined line-group keytone appears at a stage where the recording in the forward path is made (**referring to Fig. 6, Carriage 13 moves the ink-jet head in bi-directionally for printing, or recording process, and halftone process including a dither process is performed, see Figs. 18, 19 and 23, col 87,line 42 to col 8,line 23**).

Regarding claim 9, in accordance with claim 8.

Hirano discloses wherein the dither process part uses a dither mask that is formed by first patterns and second patterns (**referring to Figs. 2-4 and 28-32, dither masks or threshold matrices having different patterns, i.e. different dot size, dot**

Art Unit: 2625

arrangements such inclined or group, etc. col 17, lines 37-54), the first patterns have a plurality of different threshold values by combinations of dots recognizable as inclined line-group tone patterns (**referring to Figs 23 and 31, inclined line-group tone patterns are recognized**), and the second patterns interpolate between the first patterns to obtain linear gradation values (**referring to Fig. 18, linear gradation value is obtained**).

Regarding claim 12, in accordance with claim 8.

Hirano discloses wherein the dither process part uses a dither mask that copes with a two-way interlace recording or a multi-path recording of the image forming apparatus (**referring to Fig. 6, Carriage 13 moves the ink-jet head in bi-directionally for printing, or recording process, and halftone process including a dither process is performed, see Figs. 18, 19 and 23, col 87, line 42 to col 8, line 23**).

Regarding claim 1.

Claim 1 is directed to a method claim which substantially corresponds to operation of the device in claim 8, with method steps directly corresponding to the function of device elements in claim 8. Thus, claim 1 is rejected as set forth above for claim 8.

Regarding claim 2, in accordance with claim 1.

Claim 2 is directed to a method claim which substantially corresponds to operation of the device in claim 9, with method steps directly corresponding to the function of device elements in claim 9. Thus, claim 2 is rejected as set forth above for claim 9.

Art Unit: 2625

Regarding claim 5, in accordance with claim 1.

Claim 5 is directed to a method claim which substantially corresponds to operation of the device in claim 12, with method steps directly corresponding to the function of device elements in claim 12. Thus, claim 5 is rejected as set forth above for claim 12.

Regarding claim 6, in accordance with claim 1.

Hirano discloses that printer driver for causing a computer to execute a halftone process according to the image processing method recited in claim 1 to output the image data to the image forming apparatus (**i.e. printer driver implemented in a computer to execute a halftone process including dithering, Fig. 6, col 5, lines 16-32 and col 7, lines 25-32**).

Regarding claim 7, in accordance with claim 6.

Hirano discloses that the printer driver recited in claim 6, to carry out a halftone process with respect to the data to be output to the image forming apparatus (**i.e. printer driver causing the computer to execute the halftone process to output image data, col 5, lines 16-32**).

Regarding claim 13.

Hirano discloses an image forming system comprising: an image processing apparatus recited in claim 7 (**referring to the claim rejection discussion above**); and an image forming apparatus recited in claim 8 (**referring to the claim rejection discussion above**).

Art Unit: 2625

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3, 4, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano (US 7,499,198) as applied to claims 9 and 2 above, and in view of Iwasaki et al (US 7,011,386)

Regarding claim 10, in accordance with claim 9.

Hirano discloses wherein the dither process part uses a dither mask (**referring to Figs. 2-4 and 28-32, dither masks or threshold matrices having different patterns, i.e. different dot size, dot arrangements such inclined or group, etc. col 17, lines 37-54**), the first threshold value emphasizes the inclined line-group keytone pattern by a combination of specific dots (**i.e. threshold value related to dot size, col 18, lines 41-52**), and the second threshold value is higher than the first threshold value and emphasizes the inclined line-group keytone pattern by a combination of specific dots (**i.e. referring to Fig. 35, different threshold values for different dot size, col 19, lines 3-18**)

Hirano does not disclose that threshold values at dot positions recorded during the recording in the forward path are small relative to threshold values at dot positions

Art Unit: 2625

recorded during the recording in the return path in a section between first and second threshold values.

Iwasaki teaches that threshold values at dot positions recorded during the recording in the forward path are small relative to threshold values at dot positions recorded during the recording in the return path in a section between first and second threshold values (**i.e. threshold value is set to a predetermined value to increase reliability, col 9, lines 40-52**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Hirano to include that threshold values at dot positions recorded during the recording in the forward path are small relative to threshold values at dot positions recorded during the recording in the return path in a section between first and second threshold values as taught by Iwasaki. The motivation for doing so would have been to improve the reliability of discharge upon printing and to detect whether a printed copy is a copy or an original; and further it is easily implemented by one or other in the art with a predictable result.

Regarding claim 11, in accordance with claim 10.

Hirano discloses wherein at least 70% of the threshold values at the dot positions recorded during the recording in the forward path are smaller than the threshold values at the dot positions recorded during the recording in the return path (**i.e. adjust dot size and forming position and threshold or mask value is associated with dot size, i.e. small, medium and large, and dot forming position, col 16, lines 17-59, thus,**

Art Unit: 2625

percentage of threshold or mask value can be set during recording in the forward path).

Regarding claim 3, in accordance with claim 2.

Claim 3 is directed to a method claim which substantially corresponds to operation of the device in claim 10, with method steps directly corresponding to the function of device elements in claim 10. Thus, claim 3 is rejected as set forth above for claim 10.

Regarding claim 4, in accordance with claim 3.

Claim 4 is directed to a method claim which substantially corresponds to operation of the device in claim 11, with method steps directly corresponding to the function of device elements in claim 11. Thus, claim 4 is rejected as set forth above for claim 11.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Kau whose telephone number is 571-270-1120 and fax number is 571-270-2120. The examiner can normally be reached on M-F, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Steven Kau/
Examiner, Art Unit 2625
July 17, 2009

/David K Moore/
Supervisory Patent Examiner, Art Unit 2625